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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

REPORT

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THIS IS UNEVALUATED INFORMATION

1. Prior to December 1953, the qualified scientific personnel at the Scientific Technical Bureau No. 3 (Wissenschaftlich-Technisches Buero No. 3 (WTB-3) SAG Kabal included 12 engineers for gyroscopes and control units who had returned from the USSR and had started to work at WTB-3 in July 1953. They were assigned to development work by the Ministry for Transportation and Agricultural Machine Construction.[1] Most of the laboratory personnel were young engineers who, although post-war graduates, were highly qualified. The international scientific and technical literature available at the bureau included Soviet publications. The technical specifications laid down by the Russians were frequently identical to performance data on equipment produced in Western countries during the past few years. In many respects the Russian specifications were stricter than the Western ones, especially regarding accuracy.

2. The Soviets attached great importance to a complete documentation of the entire development work and also saw to it that all records as listed below were turned over to them:

a. Technical report with legend of symbols, development history, task and purpose of the instrument, basic functioning system, course of development and methods applied basic material underlying calculations, testing, criticism and suggestions for improvement, technical data and list of books consulted.

b. Description including the use and purpose of the instrument, description, basic functioning system, basic setup and performance and structural parts.

c. Operating instructions including directives for the cleaning and maintenance of the equipment.

d. Construction data including a diagrammatic sketch or a circuit diagram, use and purpose of the unit, characteristic values, assembly and winding data.

e. General report including the following information: Who was in charge of the project, who assisted? Where was the instrument designed and constructed? Time used for the development, the purpose, structural parts, basic functioning system, weight and dimensions.

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3. The documentation of the various development methods involved would be of great value for any future development work. Some of the documentation covered the development and production of research equipment for various scientific works, as for instance, meteorological instruments. Except for some developments which were equal in quality to the highest standards of the Western world, the instruments designed at WTB 3 were copies of equipment available in the West. They were copied regardless of expense and effort. Financial problems were only of marginal importance, rigid time schedules, however, seriously hampered the development work. The target dates had to be met, although a postponment of the deadline might have led to better results. There was no direct contact between the German engineers and the Soviet customers, and the latter were never informed about any suggestions for technical improvements which, because of the time element, were rejected by intermediate technical and administrative offices. Postponements of the target date were granted only for very urgent reasons. On special request, single parts could be procured from the West, although, in principle, only equipment available in East Germany and the USSR was to be used.

4. The 1954 development program, prepared in August 1953, included the following projects:

a. Development and production of a harmonic analyzer for frequencies up to the 50th harmonic, after the Henrici-Corady method.

b. Measuring equipment for thermal effects on metals during heating processes.

c. Universal banking and turning equipment to test autopilots, gyro horizons and other gyroscopic instruments. The instrument was to work at an angular accuracy of three arc minutes.

d. Experimental models of a harmonic analyzer for rapid analyzing according to known American methods.

e. An instrument for dynamic testing of pressure gauges.

f. An accelerometer with calibrating device.

g. Development of a small accelerograph.

h. Development and production of five simplified mobile cathode ray direction finders for thunderstorm detection.

i. Development of a generator to produce rectangular impulses.

j. Development of an experimental delayed-action recorder for atmospheric disturbances.

A rough calculation revealed that in 1954 and 1955 a total of about 4,500,000 Ostmarks would be spent on development work.

5. In April 1954, a Soviet acceptance commission prepared a final report on projects developed for the air force in which WTB 3 and its General Manager Poryadin (DNA) were subjected to acid criticism. The projects criticised included the electro-encephalograph because it failed to function at the low temperatures prescribed and because it caused blood to rush to the patient's head; the high-frequency recorder; and the oscillation recorder because of its large dimensions. The Soviets also criticised the low standard of the technical developments, which, in many cases, were based on development work done by other agencies. In early May, however, the Soviet commission awarded WTB 3 a bonus of 3,000 Ostmarks for a deep sea echo sounding device for depths of up to 11,000 meters. By May 1953 the debts of the plant amounted to about 2,000,000 DME .

6. On 5 June 1953, two Soviet civilians from Moscow, 30 and 40 years old, who spoke broken German, arrived at WTB 3 to discuss 9 projects No 53 - 3 to 53 - 11 concerning low- and high frequency techniques. Project 53 - 8, a low frequency multiple band filter, was apprently an auxiliary device for development work on telegraphy and telephony on wire lines and cables with an adjusting resistor of 600 ohms. The filters were to be connected in parallel.

1. Comment. The 1952 and 1953 development activities of WTB 3 were reported previously. 25X1 25X1

2. Comment. For documentation required for development work at WTB 3, see Annex 1. 25X1

3. Comment. For a list of development projects handled by WTB 3, status 1 December 1953, see Annex 2. Information on the development of ionosphere recorders and on the difficulties encountered with the procurement of impulse tubes was transmitted previously. 25X1 . For a list of equipment installed in the mobile ionosphere stations, see Annex 3.

4. Comment: **WTB-3 has been renamed VEB WTBG (Wissenschaftlich-Technisches Buero fuer Geraetebau) since its transfer from SAG Kabel to German management in early 1954.** 25X1

Annex 1 [redacted] 25X1

Order of Records Contained in the Individual Documentation Volumes.

A. Technical Report.

Registration Numbers

List of documents attached to the technical report

List of documents attached to the description, operating instructions, and the test report

List of documents attached to the general report

Text and technical report

Wiring diagrams

Basic switching diagrams

Construction drawings

Overall sketches

Photographs

Charts and tabulations

Tests and comments by other institutes

Technical specifications

Testing program

Testing procedure

B. Description, Instruction and Testing Records

Registration Numbers

Text of description

Text of instructions

Wiring diagram

Basic switching diagram

Electric switching diagram

Sketches giving the structural dimensions

List of electric parts

List of spare parts

Construction specifications

Overall sketch

Photograph

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Laboratory tests of the cables

Laboratory tests of the amplifiers

Laboratory test of the recording unit

Laboratory test of the transmitter unit

Laboratory test of the anode battery box

Charts and tabulations

Test and comments by other institutes

Technical specifications

Testing program

Testing procedure

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Annex 2

Development Projects Handled by WTB 3 as of 1 December 1953.

1. Project "5M" and "144 M" involved the development of ionosphere stations which, due to the lack of impulse tubes, was delayed for about eight months. Josef Kaminsk who had his office at 115 Invalidenstrasse, Berlin N 4 was in charge of procuring material from the West. He was ordered to purchase 60 tubes of type 25X1
4PR60a, against payment of $150 for each tube. Because it was expected that by April 1953, Werk HF (high frequency engineering works) would be able to supply impulse tubes of type 5 D 21 and because the customer did not wish the installation of 25X1
tubes, WTB 3 reduced this order to 30 tubes to be used during the first experiment. Kaminski, however, insisted on buying 30 tubes, since incidental expenses would be too high for only ten tubes. but he failed to purchase the tubes by mid-1953. 25X1
25X1 In November 1953
was first laboratory model was tested near Angermuende. Source stated that the new target date fixed for 30 June 1954 would probably not be met. The expenses which exceeded the scheduled outlay would presumably amount to about one million Eastmarks. One of the ionosphere stations was planned to be stationary, while the other one, a mobile station, was to be installed in three trucks. For this mobile station six 5.4 kW generators had been ordered from the Elbewerk in Roesslau. However, being unable to produce the desired units, the Elbewerk passed the order to the Sachsenwerk in Radeberg, which allegedly had more than 100 such generators, previously purchased from the Elbewerk. Three SIS 151 trucks for the mobile station have been available in Berlin-Weissensee since early 1953. The antenna mast was composed of 11 pipe sections, each 2.20 meters long and 162 mm in diameter. Perlon ropes were to serve as bracing. The transmitting power was allegedly about 5 kW.

2. Project "6M" was the development of an ionosphere reflection meter. In November 1953, the customer determined that the specifications laid down would be inadequate and cancelled the order. By 20 December 1953, the untested set was to be packed and prepared for shipping. The expenses were reimbursed.

3. Project "11 M" , a harmonic analyzer. The equipment was not developed at the institute 25X1

4. Project "75 M", an electro-cardiagraph, was accepted and delivered in July 1953.

5. Project "76 M", an electro-encephalograph, was accepted and delivered in July 1953.

6. Project "77 M" , was scheduled to be completed in December 1953.

7. Project "78 M" , a device for the simultaneous recording of 8 different processes, was also to be used for medical purposes; the project was scheduled to be completed by December 1953.

8. Project "121 M" , a cloud altimeter was discontinued in August 1953, after months of laboratory tests had failed. The data obtained were summarized and evaluated for new development methods. In order to reduce the noise level it was planned to replace the photoelectric cell amplifier by an electron multiplier tube. In order to speed up the activities, the electron multiplier tube was to be purchased from the West, and two additional engineers were assigned to this project. Because of difficulties encountered with the spark gap, the completion date had not yet been fixed.

9. Project "140 M" , a magnetic theodolite, was extended until the second quarter of 1954 because of difficulties encountered with the procurement of nonmagnetic bronze and brass alloys and the development of the Helmholtz coil. Expenses had risen to 360,000 eastmarks.

10. Project "55/3", an amplifier for 55 to 110 kcs, was being developed in Radeberg as scheduled.

11. Project "53/4", a power amplifier for 55 to 110 kcs, was developed in Radeberg as scheduled.

12. Project "53/5", an intermediate frequency transmission measuring set for broadcasting receivers, was under construction. It was requested that the target date be postponed until the second quarter of 1954.

13. Project "53/6", a measuring set for high qualitites was being developed by an RFT enterprise in Leipzig.

14. Project "53/8", a low frequency multiple band filter, was delayed [redacted] 25X1
[redacted] 25X1
The project would probably not be completed before February 1954.

15. Project "53/9", a field intensity measuring set for 5 to 100 kcs, was expected to be completed by late December 1953 as scheduled.

16. Project "53/10", a telegraphy distortion measuring instrument, it would probably be completed on schedule by late December 1953.

17. Project "53/11", [redacted] the development of a telegraphy distortion measuring set, encountered difficulties and postponement of the target date until the second quarter of 1954 was requested.

18. Project "53/12", a gyroscopic sextant, was scheduled to be continued in 1954.

19. Project "53/15", a magnetograph, was scheduled to be continued in 1954.

20. Project "53/18", a tachograph for EL and EFr values (sic), was scheduled to be completed in 1954.

21. Project "53/13", a double-beam oscillograph, was completed ahead of schedule in September 1953.

22. Project "53/17", a broadband amplifier with delay circuit encountered difficulties in connection with the mercury delay circuit. The set was expected to be completed in December 1953.

23. Project "66 M", spectrometer with a range from 600 to 9 centimeters was ready for delivery.

24. Project "58 M", a field comparator, was completed.

25. Project "109 M", a pressure indicator for 6, 30 and 80 atmospheres, was to be completed in December 1953.

26. Project "69 M", involved the development of a jolting table for 500 kg load, operating at an oscillation frequency of 0 to 500 cycles and requiring a driving power of [illegible]. The project would scarcely be completed in time because additional friction tests had to be made.

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27. Project "56 M", a d.c. amplifier, based on specifications given in an American publication on d.c. amplifiers for electronic computers. Because the publication did not include information on the power supply unit, WTB 3 failed to copy the set in spite of nine months of work. In May 1953, the customer agreed with the cancellation of the project. The final report was completed in August 1953.

28. Project "9 M", an echo sounding device, was accepted by a Soviet commission in early 1953. The installation and assembly instructions indicated that the unit was to be set up in Vladivostok. During the tests at Ruedersdorfer Kalksee, horizontal measurements were made at a distance of 11,000 meters. The echo sounding device was considered the show-piece of the firm. Neither WTB 3 nor Funkwerk Koepenick maintained a special testing station at Ruedersdorfer Kalksee.

29. Project "22 M", a noise measuring set for ball bearings, was completed and accepted in early March 1953. The tests were made with ball bearings 5 to 50 mm in diameter at the inner ring which, fixed on a spring collar, rotated at 3,000 rpm with a hydraulic pressure of about 200 kg applied to the external ring. The noises of the soundproof packed ballbearing were transmitted to a microphone and the noise volume was indicated by an oscillograph.

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Annex 3

List of Equipment Installed in the Mobile Ionosphere Station.

WTB 3

HF Department

Berlin, 13 January 1953

The mobile ionosphere observation station is composed of three trucks of which the observation truck and the power generating truck are fitted with body superstructures and the antenna truck with a canvas-covered platform. Truck I, the observation car, houses the observation room and a dark room. Truck II carries two auxiliary power generators, a cable drum with the 25-m cable connecting the observer station with the power generators or with the power mains respectively at voltages of 127 V, 220 V, and 380 V, one drum with a 25-m cable for the remote control unit, a telephone, one drum with a 25-m cable for the high power mains and an autotransformer. Truck III is loaded with boxes, at least 4.5 meters long, for duraluminum pipes, bracings and mooring equipment.

The observation truck (interior dimensions, 2,250 mm wide, about 3,020 mm long, and 1,928 mm high) has its door in the rear. The equipment to be installed includes:

1. A shelf, 75 x 180 cm, 1,82 cm high

2. Two 40 µF high voltage condensers, 28 cm wide, 55 cm long and 55 cm high.

3. One adjustable partition shutting off the light between observer room and dark room.

4. Ceiling light, white, fed from battery or generator.

4a. One E 7 130/45 type transformer and one Schuetz type transformer.

5. One corner closet next to door, housing spare parts and oscillograph tubes.

6. a. One folding table, 60 cm long, attached to the wall.
   b. One folding table, 60 cm long, attached to the wall.

7. a. Narrow shelves 15 cm deep fitted with pigeonholes, underneath folding table.
   b. Shelves underneath folding table for instruments.

8. Two windows on left hand side with blackout devices.
   One window on right hand side with blackout devices.

9. Two chairs.

10. One testing oscillograph for static deflections on shelf.

11. One reading and observation unit (enlarging of 18 x 24 photographs to DIN A 6 to DIN A 4 German standards.

12. One regulator.

13. One plug for 220 V, 50 A.

14. One heating stove and one electric heater.

15. Two transmitter insulations on the roof.

16. Two receiver insulations at the right hand wall.

17. One foam fire extinguisher from the IFA Body Plant.

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Dark Room:

1. Ceiling light, same as in observed room.

2. One tiled heating table, 40 cm deep, heater under the tiles, for developing.

3. One control set for heating table.

4. One wall table, about 40 cm deep, attached to the rear of the driver's cabin.

5. One enlarger for standard films.

6. One lamp over heating table with dark red, dark green, yellow or white filters.

7. Shelves underneath heating table for four vats, about 10 cm high, with Soviet nomenclature, and four containers for developer and fixer solutions.

8. Four Vinidur vats, 28 x 33 cm.

   a. One developer vat.
   b. One water vat.
   c. One fixer vat.
   d. One washer.

9. One Korrex type developer drum for films up to 1.70 meters long.

10. One Zeiss developing drum for film up to 1.20 meters long.

11. One dark room alarm clock.

12. One exposure clock for item No 5.

13. Four thermometers from 15 to 30 centigrades.

14. Two graduated vessels.

15. Two Vinidur funnels.

16. Upholstered shelves with locks for 5-liter containers.

17. Shelves with locks for dark room equipment, at the rear of the drivers cabin.

18. Sheetmetal closet with lock for fireproof storage of films.

19. Electric heater.

20. Black lightproof curtain at door.

21. One two-side dryer for paper 30 x 40 cm.

22. One foam fire extinguisher from IFA Body Plant.

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